

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

CARPENTER TECHNOLOGY CORP.,	:	CIVIL ACTION
Plaintiff	:	
	:	
v.	:	NO. 08-2907
	:	
ALLEGHENY TECHNOLOGIES	:	
INC., et al.,	:	
Defendants		

MEMORANDUM

STENGEL, J.

September 29, 2011

Carpenter Technologies, Inc. (“Carpenter”) and Allegheny Technologies, Inc. and ATI Properties, Inc. (collectively, “ATI”) are business competitors in the manufacture and sale of speciality alloys and other materials for use in the energy and aerospace industries. Specifically, both make and sell nickel base 718 Alloy ingots. This opinion addresses Carpenter’s antitrust claim. ATI moves for partial summary judgment on Count VII of Carpenter’s Second Amended Complaint alleging violations of the Sherman Act, 15 U.S.C. § 2. For the reasons set forth below, I will grant the motion.

I. BACKGROUND¹

On July 9, 2002, the United States Patent and Trademark Office (“PTO”) issued Patent Number ‘564 (“the ‘564 patent”), a “Method for Producing Large Diameter ingots of Nickel Base Alloys.” ATI is the owner of the ‘564 patent. On April 13, 2004, the PTO

¹ The facts are set forth in the light most favorable to Carpenter, the non-moving party.

issued Patent Number ‘858 patent (“the ‘858 patent”) for “Large Diameter Ingots of Nickel Base Alloys.” ATI is the assignee of the ‘858 patent.

On November 14, 2003, ATI sent a letter to Carpenter notifying it of ATI’s rights under the ‘564 patent and attaching a copy of the patent.² On March 9, 2005, ATI sent a second letter to Carpenter restating its ownership of the ‘564 patent and notifying Carpenter of the issuance of the related ‘858 patent. This letter specifically articulated ATI’s concern that Carpenter “may be manufacturing and selling large diameter triple-melted 718 nickel alloy ingots greater than 30 inches in diameter, including up to 36 inches in diameter.” Letter dated Mar. 9, 2005, Ex. D. To Am. Compl. It also requested that Carpenter “review the subject patents and let [ATI] know in what ways the [Carpenter] process differs from our patented process.” Id.

On June 23, 2008, Carpenter filed the instant action against ATI, seeking declaratory judgment that it has not infringed the ‘564 and ‘858 patents (Am. Compl. Counts I & II), declaratory judgment that the two patents are invalid (Counts III & IV), declaratory judgment that the two patents are unenforceable (Counts V and VI), and antitrust and Lanham Act unfair competition claims (Counts VII and VIII).

² The letter states in part:

It has come to our attention that companies involved in the manufacture of ingots, forgings, or gas turbines may be considering either the manufacture, use, or sale of product using large diameter triple-melted 718 nickel alloy ingots greater than 30 inches in diameter, including up to 36 inches in diameter.

You should be aware that [ATI] owns [the ‘564 patent] and related pending patent applications covering the manufacture, use, and sale of such large diameter nickel-base ingots. Letter dated Nov. 14, 2003, Ex. C to Am. Compl.

Following this Court's resolution of a motion to dismiss the original complaint, Carpenter amended its complaint twice and the same causes of action remain. ATI now moves for partial summary judgment in its favor on Carpenter's antitrust claim.

A. The Market for Large Diameter 718 Alloy Ingots

The demand for large-diameter alloy ingots comes to Carpenter and ATI from forgers such as Aubert et Duval Holdings, which forges the ingot into parts for electricity-generating turbines and sells the forged material directly to the General Electric Power Systems Division ("GE"). See Defs' Concise Statement of Material Facts in Supp. of Mot. For Partial Summ. J. #3 ("ATI SMF") at ¶ 7; Carpenter Resp. to Defs' Concise Statement of Material Facts in Supp. of Mot. For Partial Summ. J. #3 ("Carpenter SMF") ¶ 7. GE is the ultimate and only purchaser of the ingots produced by Carpenter and ATI. See id. In addition to making gas turbines using large-diameter (for the purposes of this motion, greater than 30 inches in diameter) Alloy 718 ingots, GE makes turbines using large-diameter Alloy 706 ingots, smaller-diameter (for the purposes of this motion, less than 30 inches in diameter) Alloy 718 ingots, and steel-based ingots. See ATI SMF ¶ 8; Carpenter SMF ¶ 8. The turbines made using Alloy 706 ingots, smaller-diameter Alloy 718 ingots, and steel-based ingots are of "lower efficiency" than gas turbines utilizing Alloy 718 ingots. Carpenter SMF ¶ 8.

Prior to 2006, and despite the existence of the patents, Carpenter supplied GE with large-diameter Alloy 718 ingots for use in land-based gas turbines. Carpenter SMF ¶ 9. It stopped doing so in 2006 due to the presence of ATI's patents and specifically in

response to the letters ATI sent to Carpenter, GE, and forgers regarding ATI's patent rights. Id. at ¶ 10. After 2006, ATI became GE's sole supplier of Alloy 718 ingots. See id. at ¶ 10; ATI SMF at ¶ 10. Ingots made from Alloy 706 or smaller-diameter ingots made from Alloy 718 "are inadequate for the higher-efficiency land-based gas turbines produced by [GE], including the 9FB Turbine." Carpenter SMF ¶ 13 (citing S.V. Thamboo, *et al*, *Large Diameter 718 Ingots for Land-Based Gas Turbines*, SUPERALLOYS 718, 625, 706 AND VARIOUS DERIVATIVES at 58, 70 (2001) (Carpenter Ex. 7)).³ Douglas Paul, GE's center of excellence leader for the purchasing of forgings and raw materials, testified that GE has attempted to identify alternative materials that could be used in place of 718 Alloy forgings in the turbines that use Alloy 718. See Paul Dep. 7:20-24; 35:4-22, Dec. 9, 2009 (ATI Ex. 46). GE has not yet identified a substitute product but continues the ongoing process of identifying one. Id. at 35:15-22.

Viewing the evidence in the light most favorable to Carpenter, the GE turbines utilizing 706 Alloy parts are both older and less efficient than those turbines using 718 Alloy parts. According to Carpenter's own assessment of the market for nickel based ingots in 1999, GE had been using Alloy 706 ingots in its turbines for the previous ten years. Carpenter Report, "Alloy 706 and 718 Large Diameter Ingot Products: Development Status and Production Capabilities and Issues," Oct. 12, 2000 (ATI Ex. 35). Carpenter's report concluded that GE's "next generation" of turbines would use 718

³ Sam Thamboo is a GE employee. The 2001 Thamboo article explains that GE's "F class turbines," which were designed in the 1980's, utilized turbine wheels made of Alloy 706 ingots. See Thamboo, *et al*, at 58. It further states GE's "new FB and H machines now employ even higher firing temperatures than the F class machines to achieve even better turbine efficiency. These temperatures exceed the capacity of alloy 706; therefore, alloy 718 has been chosen for the turbine wheels." It stated in conclusion that "the latest turbine designs require larger disks and therefore, larger diameter ingots of alloy 718."

Alloy ingots, but it also predicted that GE would continue to produce turbines using 706 ingots. Id. The report grouped the development of 706 and 718 ingots largely together, commenting that the “the GE design is selling very well and the resulting demand for large Triple Melt ingots of 706 and 718 is apparently exceeding the capabilities of GE’s present suppliers.” Id. The report concluded that “the large ingot 706 / 718 business opens a significant new market to Carpenter.” Id.

A 2008 email from Carpenter market specialist Gary DeWald to Carpenter employee Russell Reber contained a report of DeWald’s trip to GE to discuss its future supply needs with Chris Giordano, GE’s Senior Global Commodity Leader. See ATI Ex. 38. DeWald reported that GE’s “biggest jump in demand for next year is expected in the 6FA units . . . and the 9FA (uses 36” 718 ingots).” Id. However, DeWald also reported that GE was shifting away from 7FA and 9FA units “to E class gas turbines” which use “steel parts for rotors, wheels and spacers and although they are not as efficient as the F series[,] the cost is much less.” Id.

B. Carpenter’s Antitrust Allegations

Carpenter states a claim under Section 2 of the Sherman Act,⁴ alleging that ATI has violated the Act by “monopolizing or attempting to monopolize the market for cast and wrought 718 Alloy VAR ingots greater than 30 inches in diameter . . . through the

⁴ The Sherman Act imposes liability on “[e]very person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations[.]” 15 U.S.C. § 2. The Supreme Court has recognized that enforcement of a patent obtained through fraud on the Patent Office can form the basis for a claim under the Sherman Act. Walker Process Equip., Inc. v. Food Mach. and Chem. Corp., 382 U.S. 172 (1965).

enforcement of the ‘564 and ‘858 Patents that were obtained by fraud or fraudulent means.” SAC at ¶ 65. Carpenter defines the relevant product market as “cast and wrought 718 Alloy VAR ingots greater than 30 inches in diameter” and the relevant geographic market as “the United States and Europe.” See id. at ¶¶ 66-67. Carpenter further claims that ATI is the sole supplier of the relevant product in the defined market, and that potential entrants to the market face high barriers, namely high capital costs and technological obstacles. Id. at ¶ 68. Carpenter further alleges that due to the unique characteristics of 718 Alloy, “there is no cross-elasticity of demand between the Product and other products” and no “alternative product for use in high-efficiency, land-based gas turbines.” Id. at ¶ 69. Finally, Carpenter asserts that ATI has used its monopoly power to restrain or otherwise adversely affect competition in the relevant market by requiring potential customers to incur the costs associated with challenging ATI’s patents.

The basis of Carpenter’s fraud allegation is that ATI has “engaged in exclusionary conduct through the enforcement, or threatened enforcement, of a patent they know was procured by fraud or fraudulent means on the U.S. Patent and Trademark Office.” SAC at ¶ 77. Carpenter accuses ATI of making false representations of material fact and withholding material information from the PTO in connection with prosecution of the ‘564 and ‘858 Patents, and of engaging in inequitable conduct by intentionally omitting false information from, or submitting false and misleading information to, the PTO. SAC at ¶¶ 78, 79.⁵

⁵ Carpenter’s fraud allegations continue, but there is no reason to detail them here. ATI does not seek summary judgment on the fraud elements of Carpenter’s Walker Process claim.

C. McChesney Reports

In support of its antitrust claim, Carpenter relies on the reports of its expert, Dr. Fred McChesney.⁶ Dr. McChesney's initial report contains his opinion that the relevant product market is "cast and wrought 718 Alloy VAR ingots greater than 30 inches in diameter, with the 718 Alloy being a grade satisfactory for use in high-efficiency, land-based gas fired turbines and having properties that reduce segregation tendencies during solidification of the VAR ingot." McChesney Jan. 9, 2010 Report (ATI App. Ex. 36) at ¶ 18. For purposes of his antitrust analysis, he assumes that the ATI patents are invalid, that ATI is currently the sole supplier of the relevant product; that there are significant barriers to entry into the market, including high capital costs and technological obstacles; that the 718 Alloy is the only "technically and economically acceptable superalloy for use in [high efficiency land-based gas turbines] at higher firing temperatures; and that there is no cross-elasticity of demand between the product and other products. *Id.* at ¶¶ 15, 20(A),(D),(E),(F). He offers no opinions following this lengthy set of assumptions, simply stating in conclusion that "based on the foregoing assumptions I expect I will be able to offer calculations of antitrust damages, upon analysis of the information I have been provided." *Id.* at ¶ 21.

In his second report, Dr. McChesney provides further support for his definition of the relevant product market, explaining that greater-than 30-inch 718 Alloy ingots, as used in land-based gas turbines, are purchased solely by GE, which has not found an

⁶ Dr. McChesney is a Professor at Northwestern University Law School and at the Kellogg School of Management. He has a J.D. and a Ph.D. in economics. ATI does not dispute that Dr. McChesney is qualified to render an expert opinion with respect to the antitrust issues in this case.

acceptable substitute for the product as defined. McChesney June 15, 2010 Supp. Report (ATI App. Ex. 32) at ¶¶ 7-18. He explains that 718 Alloy is metallurgically unique (for example, in its ability to withstand higher temperatures during long term exposures) and that large-diameter 718 Alloy ingots are functionally unique because they “allow performances in land-based gas turbines not possible with smaller diameter alloys.” Id. at ¶¶ 7-18. He explains that 718 Alloy ingots of less than 30 inches in diameter cannot be used in GE’s “advanced class of gas turbines.” Id. at ¶ 11. He describes the relevant product market as one of “derived demand” – the demand for ingots from Carpenter and ATI comes from forgers, whose demands directly reflect GE’s need for forgings to be used in the manufacture of turbines. See id. at ¶¶ 13-14. Citing deposition testimony of GE employees Art Kracke and Sam Thamboo, McChesney further opines that GE has determined that there are “no substitute products” for large-diameter 718 Alloy ingots, because no other product is acceptable for use once GE commits to making certain types of high-efficiency turbines. Id. at ¶¶ 15, 17-18. McChesney explains that the relevant geographic market is the United States and Europe, because GE only purchases relevant products from forgers in the United States and Europe. Id. at ¶¶ 19-23. McChesney further opines that ATI has market power in the relevant product market because it is the sole supplier of 36-inch 718 ingots (giving it 100 percent of market share) and because the highly technical nature of the field and financial costs to entry make any likelihood of a new entrant in the field “remote.” Id. at ¶ 29.

Finally, McChesney provides his damages calculation. He explains that Carpenter profited from the production of large-diameter 718 Alloy ingots until it was forced to stop

selling them in 2006, as a result of the increasing pressures it faced stemming from ATI's ownership of the relevant patents. Id. at ¶ 31-33. As he explains, Carpenter, the forgers, and GE all knew of ATI's patents. Carpenter was asked to enter into indemnification agreements with its customers, and in turn, attempted to secure indemnification from GE for the materials it sold to the forgers. Id. at ¶ 33. These pressures and "the fear of legal liability" "caused Carpenter to exit the market for large-diameter 718 alloy ingots by 2006. Id. at ¶ 35.

As the benchmark for his damages calculation, McChesney first examines the period from 1999 to 2004 in the market for Alloy 706 ingots. During this time period and in this market, McChesney explains, Carpenter and ATI were competing, and Carpenter held 46.1 percent of the market. Using this as a benchmark, he estimates that without ATI's anticompetitive conduct, Carpenter would have had the same market share in the market for 718 Alloy ingots from 2002 to 2009. During this time period, total production of Alloy 718 ingots was 5,445,737 pounds.⁷ McChesney Aug. 15, 2010 Report at ¶ 14. Had this market been competitive, McChesney asserts, it is reasonable to assume that Carpenter would have had 46.1% market share (selling not the 838,000 pounds it actually sold but instead selling 2,510,485 pounds, which represents 46.1% market share). Id. at ¶ 41-42. Assuming Carpenter would have continued making the same profits on Alloy 718 ingots it made before exiting the market (\$1.35 per pound), McChesney finds that "[a] conservative estimate of Carpenter's actual damages, based on its lost volume . . . and its

⁷ This number was provided in Dr. McChesney's second supplemental report, in which he revises the damages calculation in his first revised report. This memorandum will refer only to the figures provided in Dr. McChesney's second report, as those numbers present his revised opinion.

previous profits . . . amounts to \$2,257,855.” Id. at ¶ 18. Treble damages, as mandated by section 4 of the Clayton Act, would therefore amount to \$6,773,564. Id. at ¶ 19.

II. STANDARD OF REVIEW

A. Summary Judgment Standard

Summary judgment is proper “if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.” FED. R. CIV. P. 56(a). A factual dispute is “material” only if it might affect the outcome of the case. Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 248 (1986). For an issue to be “genuine,” a reasonable fact-finder must be able to return a verdict in favor of the non-moving party. Id.

A party seeking summary judgment initially bears responsibility for informing the court of the basis for its motion and identifying those portions of the record that it believes demonstrate the absence of a genuine issue of material fact. Celotex Corp. v. Catrett, 477 U.S. 317, 322 (1986). A party asserting that a fact cannot be or is genuinely disputed must support the assertion by citing relevant portions of the record, including depositions, documents, affidavits, or declarations, or showing that the materials cited do not establish the absence or presence of a genuine dispute, or showing that an adverse party cannot produce admissible evidence to support the fact. FED. R. CIV. P. 56(c). Summary judgment is therefore appropriate when the non-moving party fails to rebut the moving party’s argument that there is no genuine issue of fact by pointing to evidence that is “sufficient to establish the existence of an element essential to that party’s case, and

on which that party will bear the burden of proof at trial.” Celotex, 477 U.S. at 322; Harter v. GAF Corp., 967 F.2d 846, 852 (3d Cir.1992).

Despite their factually intensive nature, “the standard of [Rule 56] remains the same” in antitrust cases. Town Sound & Custom Tops v. Chrysler Motors Corp., 959 F.2d 468, 481 (3d Cir. 1992). “To survive a motion for summary judgment, an antitrust plaintiff must produce all economically plausible evidence supporting the elements of its claim.” Harrison Aire, Inc. v. Aerostat Int’l, Inc., 423 F.3d 374, 380 (3d Cir. 2005) (citing Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 588 (1986)).

B. Elements of a Walker Process Antitrust Claim

It was in Walker Process Equip. that the Supreme Court recognized the validity of monopoly allegations linked to allegedly fraudulently procured patents. “The enforcement of a patent procured by fraud on the Patent Office may be violative of [Section] 2 of the Sherman Act provided the other elements necessary to a [Section] 2 case are present.” Walker Process, 382 U.S. at 174. A Walker Process claim is supported with proof that a patent was obtained “by knowingly and willfully misrepresenting facts to the Patent Office[.]” Id. at 177. The elements of a Walker Process fraud claim are: (1) a false representation or deliberate omission of a fact material to patentability, (2) made with the intent to deceive the patent examiner, (3) on which the examiner justifiably relied in granting the patent, and (4) but for which the misrepresentation or deliberate omission the patent would not have been granted. In re Remeron Antitrust Litig., 335 F. Supp. 2d 522, 528 (D.N.J. 2004) (citing C.R. Bard., Inc.

v. M3 Sys., Inc., 157 F.3d 1340, 1364 (Fed. Cir. 1998)). The question of whether there was fraud on the Patent Office is governed by Federal Circuit law. Again, ATI has not moved for summary judgment on the fraud elements of Carpenter's claim.

Once fraud on the Patent Office has been proven with sufficient evidence, a party alleging Walker Process fraud must also "show the basic elements of an antitrust violation defined by the regional circuit's law, including that the patentee's behavior was directed to a relevant product market." Dippin Dots, Inc. v. Mosey, 476 F.3d 1337, 1348 (Fed. Cir. 2007). Liability under § 2 of the Sherman Act requires "(1) the possession of monopoly power in the relevant market and (2) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident." Broadcom Corp. v. Qualcomm, Inc., 501 F.3d 297, 307 (3d Cir. 2007) (citing United States v. Grinnell Corp., 384 U.S. 563, 570, 86 S.Ct. 1698 (1966)). The existence of monopoly power can be "proven through direct evidence of supracompetitive prices and restricted output." Id.

Monopoly power can also be "inferred from the structure and composition of the relevant market" by showing that one firm has a dominant share in a relevant market and that other firms are blocked by significant entry barriers. Id. Absent evidence of a dominant share of the relevant market, other factors must be considered. Id.; see also Harrison Aire, Inc. v. Aerostar Int'l, Inc., 423 F.3d 374, 382 (3d Cir. 2005). When proving monopoly power indirectly, the plaintiff has the burden of defining the relevant market. Queen City Pizza, Inc. v. Domino's Pizza, Inc., 124 F.3d 430, 436 (3d Cir. 1997) (citing Pastore v. Bell Tel. Co. of Penn., 124 F.3d 508, 512 (3d Cir. 1994)). A relevant

market has two components – the product itself and the geographic area in which it is sold. “The outer boundaries of a product market are determined by the reasonable interchangeability of use or the cross-elasticity of demand between the product itself and substitutes for it.” Queen City Pizza, 124 F.3d at 436 (internal citations omitted).

“Interchangeability implies that one product is roughly equivalent to another for the use to which it is put[.]” Id. at 437. Cross-elasticity of demand is a measure of interchangeability, and occurs when “the rise in the price of a good within a relevant product market [tends] to create a greater demand for other like goods in that market.” Id. at 438 & n. 6. It is a measure of “the substitutability of products from the point of view of buyers.” Id. at n. 6. This reflects the more general rule that “[t]he test for a relevant market is not commodities reasonably interchangeable by a particular plaintiff, but ‘commodities reasonably interchangeable by consumers for the same purposes.’” Id. at 438 (citing United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377, 395, 76 S.Ct. 994 (1956); Tunis Bros. Co., Inc. v. Ford Motor Co., 952 F.2d 715, 726 (3d Cir. 1991)). When assessing reasonable interchangeability, factors to be considered include “price, use, and qualities.” Tunis Brothers, 952 F.2d at 722.

Stated differently,

A product or group of products constitutes a market when its producers, if united by a hypothetical cartel, could maximize profits by charging significantly supracompetitive prices. The market thus includes . . . other products that buyers regard as such close substitutes that a slight relative price change in one will induce intolerable shifts of demand away from the other.

Phillip Areeda & Herbert Hovenkamp, ANTITRUST LAW § 562 (2nd Ed. 2002). The Third Circuit has stated that “where a plaintiff fails to define its proposed relevant market with reference to the rule of reasonable interchangeability and cross-elasticity of demand, or alleges a proposed relevant market that does not encompass all interchangeable substitute products. . . . the relevant market is legally insufficient.” Queen City Pizza, 124 F.3d at 436.

III. DISCUSSION

ATI seeks summary judgment in its favor on Carpenter’s antitrust claim, arguing (1) that Carpenter has failed to show that ATI has monopoly power within a relevant market, because its proposed definition of the relevant market is insufficient, and (2) that Carpenter has offered no admissible evidence of antitrust damages.

A. Carpenter Has Failed to Present Sufficient Indirect Evidence in Support of Its Proposed Relevant Market

ATI asserts that Carpenter has failed to define a relevant market because it simply argues, “in conclusory fashion[,] that there are no products reasonably interchangeable with alloy 718 ingots in diameters greater than 30 inches and thus that the relevant product market is coterminous with the scope of certain claims of the ATI patents.” ATI Mem. in Supp. Of Mot. For Partial Summ. J. (“ATI Mem.”) at 6. Specifically, ATI claims (1) that Carpenter failed to address whether other products were economically substitutable for Alloy 718 ingots; (2) that Carpenter’s own expert, Dr. Fred McChesney,

admitted that other ingots, specifically Alloy 706 ingots, *are* economic substitutes for Alloy 718 ingots and that Carpenter’s internal documents reflect the same conclusion; and (3) that Carpenter’s relevant market definition wrongly relies entirely on the fact that Alloy 718 ingots have no technological equivalent.

ATI claims that Carpenter has failed to show that that no reasonably interchangeable substitutes for large-diameter 718 Alloy ingots exist. ATI Mem. at 6. It further claims that Carpenter’s Section 2 allegations are particularly untenable because Carpenter has defined its relevant market as “coterminous with certain claims in the [‘564 and ‘858] patents.” *Id.* at 7. In order to sustain an antitrust claim, an antitrust plaintiff must establish the relevant market for its product.⁸ The plaintiff must establish both product and geographic dimensions for the market. Two factors are traditionally emphasized in determining the relevant product market: the extent to which the defendant’s product is interchangeable in use with alleged alternative products, or substitutes, and whether there is a cross-elasticity of demand between the defendant’s product and supposed substitutes. This is an initial, and necessary inquiry. See Columbia Metal Culvert Co., Inc. v. Kaiser Aluminum & Chem. Corp., 579 F.2d 20, 26 (3d Cir. 1978) (noting that as a prelude to examining the extent of a firm’s power, courts must “look to the range of ‘commodities reasonably interchangeable by consumers for

⁸ “Definition of the relevant market identifies that ‘part’ of commerce within which the defendant has allegedly achieved an illegal monopoly position[.] . . . [P]roof of the relevant market focuses attention upon that area of trade within which the defendant purportedly exercises a monopolist’s control over prices and competition.” William C. Holmes & Melissa Mangiaracina, *ANTITRUST LAW HANDBOOK* § 3:4 (2010-2011 Ed.).

the same purposes.’” (citing E.I. DuPont & Co., 351 U.S. at 391)). It involves, at a most basic level, “ascertain[ing] the flow of commercial interactions.” Id.

Carpenter, through its expert Dr. McChesney, does not appear to dispute that the relevant market it alleges falls entirely within the scope of the patents, meaning that ingots of other materials and in other sizes are not economically interchangeable with large-diameter, Alloy 718 ingots.⁹ This is a serious flaw in Carpenter’s claim. By focusing entirely on the technological and functional uniqueness of large-diameter 718 ingots, Carpenter ignores entirely the key question of economic interchangeability. ATI has presented evidence that large-diameter 718 ingots are economically interchangeable with other ingots, including large-diameter Alloy 706 ingots.

In 1999, Carpenter had already experienced success in its sales of 706 ingots for use in land-based gas turbines. Its forecasting report recognized that 718 Alloy turbines represented the next generation of turbines, but did not reflect any belief that use of 718 ingots in certain turbines would result in any significant drop in demand for 706 ingot turbines. The report treats the market for both alloy types as one large market for nickel-based alloy ingots. ATI’s evidence also suggests that turbines made of steel parts were or could become a competitor in the same market. GE, the only consumer of such ingots, reported in 2008 that its biggest jump in demand for turbines would be for 9FA turbines using 36-inch 718 Alloy ingots, but simultaneously referenced a shift away from those products to less-efficient turbines using steel parts. Carpenter’s Rule 30(b)(6) witness,

⁹ See Carpenter Resp. to Defs. Mot. For Summ. J. (“Carpenter Resp.”) at 6-7 (arguing that large-diameter 718 Alloy ingots are functionally and technologically unique and further claiming that Carpenter, ATI’s only viable competitor in the market for the product, was foreclosed from competing with solely due to ATI’s threats of patent enforcement.)

Russell Reber, testified that GE has a wide breadth of product offerings using various ingot types. See Reber Dep. 81-82, July 27, 2010 (ATI Ex. 34). In fact, during his deposition, Mr. Reber explained the market for turbines offered by GE as follows:

GE appears to offer their customer base a choice of power plants, [including] ones that are relatively low cost but are nowhere near as efficient, and those are the ones that use [stainless steel], to the 706-bearing power plants, which seem to be extremely popular in the marketplace, to then these very, very high-end power plants that are very efficient and use 718.

Reber Dep. at 82:1-8. Carpenter has not alleged nor offered proof that the only way for GE to manufacture a turbine is using 718 Alloy ingots. This Court will not speculate about a changing market, which at one time cultivated a demand for large-diameter 718 ingots to the exclusion of all other products. In order to survive summary judgment, Carpenter has to present sufficient evidence that large-diameter 718 ingots (and the turbines that require them) do not compete with ingots made of other materials or in smaller sizes. Carpenter does not actually present such evidence, instead resting on its argument that “once [GE] has committed to manufacturing a high-efficiency land-based gas-fired turbine, [large-diameter 718 Alloy ingots] [are] required by [GE].” Carpenter SMF ¶ 11.

Carpenter’s focus on the fact that one class of high-efficiency turbines requires the use of large-diameter 718 ingots is overly narrow. The level of efficiency of a product and its supposed attractiveness to consumers is but one factor courts must consider in determining the relevant market in an antitrust case. See Tunis Brothers, 952, F.2d at 722 (factors to be considered in assessing reasonable interchangeability include “price, use,

and qualities.”). Carpenter has presented no evidence on other important factors GE takes into account in determining what kind of turbines to manufacture (which accordingly determines the kind of ingots it requires). Carpenter’s own 30(b)(6) witness testified that turbines using 706 alloys remain “extremely popular in the marketplace.” Reber Dep. 82:1-8. Dr. McChesney, too, admitted that GE makes turbines using 706 ingots, 718 ingots, and other materials. See McChesny Dep. 62:22 – 63:1, Aug. 30, 2010 (ATI Ex. 37). Despite recognizing that GE is the only consumer of the ingots made by Carpenter and ATI, that GE uses those ingots to make turbines, and that GE has the option of making different kinds of turbines, Dr. McChesney refused to acknowledge the impact of this flow of commerce and admitted that he had done no investigation into factors affecting consumer behavior:

- Q: So these producers of turbine generated electricity can choose between GE turbines with 706, GE turbines with 718, and maybe some other turbine; is that correct?
- A: I believe that’s correct.
- Q: And they can also choose between turbines that are made by GE and turbines that are made by someone else?
- A: I believe that’s also correct.
- Q: So they might choose to buy a turbine and insist on 718, but they also might buy a turbine and insist on 706?
- A: I believe that’s correct.
- Q: Did you do any investigation into the factors that weigh into those choices?
- A: No, there’s no relevance to that. That makes no difference to what’s going on in the ingot market. That’s - -
- Q: Well, if nobody’s buying GE turbines with 718 and they’re all buying 706, how can it make no difference with respect to what’s going on in the ingot market?
- A: But they are buying 718’s.
- ...
- Q: Are you aware, sir, that some purchasers of turbines were choosing between 706 ingots, 706-based turbines and turbines that use stainless steel instead of 718 ingots?

- A: Yes.
- Q: And doesn't that - - don't these decisions have some influence over what's going on in the ingot market?
- A: It [affects] the level of demand for 718 ingots, sure.
- Q: And do you think that the price of the 718 ingots might [affect] the level of demand for the turbines that use them?
- A: If the price of 718 ingots increases, presumably the quantity purchased of 718 ingots will decline, if that's what your question is.
- Q: Yeah, because the turbine buyers might choose to use 706 ones, correct?
- A: At the margin they might, some might.
- Q: Did you do any investigation into where that tradeoff was?
- A: No. Once again, it's of no relevance.

McChesney Dep. 62:22 – 64:22. While it is conceivable that a distinct market for large-diameter 718 Alloy ingots exists due to the compositional uniqueness of such ingots, Carpenter has the burden of providing evidence in support of such a claim, including evidence that ingots of other sizes and materials are not feasible economic substitutes.¹⁰ Both Dr. McChesney and Carpenter refuse to confront ATI's evidence that other ingots were reasonable substitutes since GE manufactured many kinds of turbines using ingots of various materials, in a marketplace where these other types of turbines continued to present alternatives to 718 turbines. Notably, when asked whether he was familiar with the phrase "economic substitutability," Dr. McChesney stated that he could only guess what it means, but was not "aware of it in the context of relevant product markets."

Carpenter's argument that large-diameter 718 Alloy ingots constitute the relevant product market because they alone are suitable "once GE has committed to making a high-efficiency land-based gas-fired turbine," is also lacking. Even assuming this fact is

¹⁰ There is a presumption in favor of multibrand markets that may be overcome, but only with evidence that "defendant's own products are so unique or so dominant in the market in which they compete that any action by the manufacturer to increase his control over his product virtually assures that competition in the market will be destroyed." Areeda & Hovenkamp, ANTITRUST LAW § 563d.

true, it is insufficient for antitrust purposes, since the uniqueness of a product is not sufficient to prove a relevant market. See CCPI Inc. v. American Premier, Inc., 967 F. Supp. 813, 817-18 (D.Del. 1997) (holding that cases in which a patented product constitutes a relevant market “will at best be a rarity”); Sheet Metal Duct, Inc. v. Lindlab, Inc., No. 99-6299, 2000 WL 987865 at *4 (E.D.Pa. July 18, 2000) (dismissing Section 2 antitrust claim where the plaintiff alleged that “there are no products interchangeable with [the patented product] because various projects call out [the patented product] by name” and noting that “such circularity cannot be enough to delineate a relevant market for antitrust claims.”).

This argument also seems to ignore the economic reality that, as admitted elsewhere by Carpenter, the demand for a particular type of ingot is “fueled entirely by the demand for turbines made from them.” ATI Reply to Pl.’s Resp. to Mot. For Partial Summ. J. at 8. To accept that GE must make an ingot with 718 Alloy once it determines that it is going to make its latest model, highest efficiency turbine does not compel the conclusion that GE previously had no choice in what kind of turbine to manufacture. Carpenter proffers almost no evidence into the factors that affect this initial, and relevant decision. Even assuming that high-efficiency turbines are those which customers would most prefer, Carpenter has presented no evidence that, if the price of 718 Alloy ingots, and therefore the price of those high-efficiency turbines, were to increase, customers would not demand, and GE would not manufacture, more of the lower efficiency, 706 ingot turbines. In fact, the evidence submitted by ATI supports the conclusion that both

the 706 and the 718 ingot turbines have remained popular in the market and were viewed by Carpenter as competitors.

Carpenter clings to its argument that the relevant market in this case is the market for large-diameter 718 Alloy ingots, despite clear case law establishing that it must address the availability of economic substitutes for this product. Carpenter's expert refused to inquire into the impact of alternatives in the marketplace, insisting that there are none simply because the product is technologically unique. Carpenter has not met its burden on summary judgment. This Court is required to "ascertain the flow of commercial transactions" in order to determine whether Carpenter's product market, as proposed, is one recognized by antitrust laws. ATI has presented evidence that Carpenter itself viewed the market for 706 and 718 ingots as, at the least, related. It has presented evidence from both GE and Carpenter showing that GE manufactures turbines using both 706 and 718 ingots, as well as stainless steel. Carpenter's own expert admitted that purchasers of turbines can choose between 706, 718, and stainless steel, and that an increase in the price of 718 ingots would affect the demand for 706 ingots. He also admitted that he did not investigate the tradeoff between 706 and 718 turbines.

Carpenter has responded with evidence that barriers to entry into the ingot market are high, and that 718 Alloy ingots are a unique, patented product. That evidence appears to be insufficient first because a unique, patented product that constitutes a market in itself is a "rarity," CCPI, Inc., 967 F.Supp. at 817, and second, because Carpenter has offered no evidence to rebut ATI's evidence showing that Alloy 718 ingots, Alloy 706 ingots, and possibly stainless steel, *are* reasonably interchangeable for use in turbines. In order

to show that its relevant market definition is valid, Carpenter has to prove that there are no reasonable substitutes for Alloy 718 ingots. The record evidence undermines Carpenter's limited definition of the relevant market, and Carpenter has not proved a set of facts supporting its own definition.

B. Carpenter Has Failed to Present Sufficient Direct Evidence of Monopoly Power

Carpenter also argues that its antitrust claim should survive summary judgment because it has presented sufficient direct evidence of monopoly power in its proposed relevant market. See Carpenter Resp. at 20-24. As recognized by the Third Circuit in Broadcom, “[b]ecause market share and barriers to entry are merely surrogates for determining the existence of monopoly power . . . direct proof of monopoly power does not require definition of the relevant market.” 501 F.3d at 307 n.3. The Third Circuit relied on numerous other circuit decisions in reaching this conclusion, none of which found that an antitrust plaintiff can prove monopoly power alone *without reference to a* relevant market. These cases instead stand for the proposition that there are two ways to show market power: through direct evidence of a defendant's ability to control prices or exclude competition, or through indirect evidence that, in an area of competition, defendants had a controlling market share. See e.g., PepsiCo, Inc. v. Coca Cola Co., 315 F.3d 101, 107-08 (2d Cir. 2002) (explaining the two ways of proving monopoly power but observing that “numerous cases state that defining a relevant market is generally a necessary component of analyzing a monopolization claim. Once a relevant market is

determined, the defendant's share in that market can be used as a proxy for market power.”); Conwood Co., L.P. v. U.S. Tobacco Co., 290 F.3d 768, 783 & 783 n.2 (6th Cir. 2002) (noting that monopoly power “may be proven directly by evidence of the control of prices or the exclusion of competition, or it may be inferred from one firm’s large percentage share of the relevant market” but observing initially that defendant “does not challenge that it has monopoly power; nor is there an issue as to the relevant product [] and geographic markets[.]”).

Therefore, Carpenter’s antitrust claim remains lacking for its failure to proffer sufficient evidence in support of its relevant market definition. Nonetheless, I will briefly address why its direct evidence is insufficient even assuming the relevant market is limited to large-diameter 718 Alloy ingots. Carpenter claims that “ATI limited the output of competitors by threatening patent enforcement, refusing to grant licenses, and thus maintained artificially high prices.” Carpenter Resp. at 21. Carpenter supports this argument by citing damages tables prepared by ATI’s expert, Phillip Beutel, in support of ATI’s patent infringement claims against Carpenter. Carpenter claims that a comparison of its own net profit per pound during those times it sold large-diameter 36 inch ingots, with ATI’s net profit per pound after Carpenter exited the market in 2006, shows that ATI “is sustaining supracompetitive prices almost 50% higher than Carpenter’s last price, with incremental profits nearly twice those Carpenter achieved, and net profit per pound increase three times that realized by Carpenter in 2004.” Carpenter Resp. at 23.

The Second Circuit has directly confronted the question of what proof is necessary to show direct evidence of market power. In Geneva Pharms. Tech. Corp. v. Barr Labs.,

Inc., it ruled that, to support a claim that defendants set supra-competitive prices, antitrust plaintiffs must provide an analysis of the defendant's costs, and show that the defendant had an "abnormally high price-cost margin" and that they "restricted output." 386 F.3d 485, 500 (2d Cir. 2004); see also In re Remeron Direct Purchaser Antitrust Litig., 367 F. Supp. 2d 675, 681-82 (D.N.J. 2005) (granting motion for summary judgment in favor of defendant in a Section 2 case where plaintiff had proffered no evidence of excessive price-cost margins or restricted output); Areeda & Hovenkamp, ANTITRUST LAW § 501 ("[T]he substantial market power that concerns antitrust law arises when a defendant . . . can profitably set prices well above its costs[.]").

Carpenter has offered no evidence that ATI has achieved an abnormally high price-cost margin. As pointed out by ATI and acknowledged by Carpenter, the selling price for large-diameter 718 ingots is driven by the price of nickel. See Rebuttal Expert Report of Phillip Beutel at 19 & n. 56¹¹ and Attach. 6a (showing that the price ATI charged for its 718 Alloy ingots generally tracked the price of nickel) (ATI Ex. 30); Reber Dep. 23 (explaining that nickel is 42% of the input of the relevant product and stating that its practice is to base ingot price on the price of nickel). As set forth by Dr. Beutel in the same tables on which Carpenter relies, ATI's annual profit margins ranged from 27.8% to 45.9%, with an average of 36.1%. See Supplemental Report of Phillip Beutel Attach. 3a (Carpenter Ex. 11). Carpenter's profits when it sold the same product ranged from 24.6% to 41.1%, with an average of 33.5%. See id. In other words, the

¹¹ In support of this conclusion, Dr. Beutel cites ATI internal documents, a conversation with ATI employee Art Kracke, and deposition testimony of GE employee Douglas Paul, who confirmed that material costs affect the price for large diameter 718 ingots.

profits Carpenter claims reflect supracompetitive prices were not drastically above its own profits for the same product. I need not even assume that the reasoning offered by ATI to explain its profit margins is correct. It is Carpenter's burden on summary judgment to offer evidence that ATI earned supracompetitive prices, and Carpenter has failed to offer any analysis of ATI's costs relative to its profits, thereby failing to meet this burden.¹² Neither can Carpenter turn to any analysis from its expert: when questioned whether he had calculated the competitive price level in the market for large-diameter 718 ingots, Dr. Chesney stated that he had not. See McChesney Dep. 37:2-19.

With respect to restricted output, Carpenter apparently concedes this argument, as it notes in its own brief that instead of restricting output following Carpenter's exit from the market in 2006, ATI's sales data reflect that "volume sales [of large-diameter 718 Alloy ingots] hit all time highs in 2007 and 2008." Carpenter Resp. at 23.

IV. CONCLUSION

Carpenter has failed to provide sufficient evidence in support of its proposed relevant market definition, and has therefore failed to show that ATI had market power. Thus, there is no need to address Carpenter's damages claims. I will grant ATI's motion for summary judgment and dismiss Count VII of Carpenter's complaint.

An appropriate Order follows.

¹² Carpenter cites the testimony of its 30(b)(6) witness Russell Reber, who testified that GE (which is not a party to this case) has been injured because it is "paying a price for the product that would - - that is much higher than it otherwise would be if there was more efficient competition in the marketplace" and that the profits for ATI's 718 ingots were double the profits Carpenter earned for 706 ingots. Reber Dep. 12:25-13:3.; 14:17-20. This unsubstantiated opinion testimony is not sufficient to carry Carpenter's burden.